

REMARKS

Claims 1-24 are pending.

Claims 1-24 are rejected.

Claim 3, 10, 12 and 20 have been canceled, without prejudice.

Claims 11, 14 and 19 have been amended. Support for these amendments can be found throughout the specification, claims, and drawings, as originally filed.

The specification has been amended on page 19, at line 3, to insert reference numeral 108 to denote the spherical surface of the optical block 106. The Applicant avers that no new matter has been introduced into the specification by virtue of this amendment.

OBJECTION TO THE SPECIFICATION

The Examiner asserted that the title of the invention is not descriptive. The Examiner stated that a new title is required that is clearly indicative of the invention to which the claims are directed.

The Applicant respectfully traverses the objection to the specification.

The Applicant submits that the title of the invention is descriptive. The title "image viewing device" is exactly what the invention is and intended to be used for. The Applicant is uncertain as to the exact basis of the Examiner's assertion that the title of the invention is not descriptive. That being said, if the Examiner continues to maintain the objection to the specification, the Applicant respectfully invites the Examiner to suggest an acceptable alternative title in the next official communication.

Accordingly, the Applicant submits that the objection to the specification has

been overcome.

OBJECTION TO THE DRAWINGS

The drawings stand objected to under 37 C.F.R. 1.83(a). The Examiner asserted that the drawings must show every feature of the invention specified in the claims. The Examiner asserted that, the optical block comprised of "plastic, glass, refractory minerals, quartz, materials transparent to infrared light, silicon, germanium, refractory liquids, water, and combinations thereof" and "the optical block has a substantially parabolic surface opposite the flat surface" and "the optical block has a substantially spherical surface opposite the flat surface" and "viewing means" and "coupling means for optically coupling the optical block to the image intensifying means" and the image detection means consisting of "videotape detector chip, motion picture film, and combinations thereof" must be shown or the feature(s) canceled from the claim(s).

The Examiner asserted that the drawings stand objected to under 37 C.F.R. 1.83(a) because they fail to show how the image intensifying means, viewing means, cleaning means, recording means, color filter means, and coupling means are interconnected and controlled so as to obtain the specific operations desired by the applicant.

The Applicant respectfully traverses the objection to the drawings.

With respect to the objection to the optical block being comprised of "plastic, glass, refractory minerals, quartz, materials transparent to infrared light, silicon, germanium, refractory liquids, water, and combinations thereof," the Applicant has

amended claim 19 to recite a "refractory material" which is denoted as numeral 46 in the drawings. Therefore, the optical block 46 comprised of a refractory material is clearly shown in the drawings.

With respect to the objection to "the optical block has a substantially parabolic surface opposite the flat surface," the Applicant has canceled claim 3, without prejudice, in an effort to expedite prosecution and without admission that any amendment is necessary.

With respect to the objection to "the optical block has a substantially spherical surface opposite the flat surface," the Applicant submits that the substantially spherical surface opposite the flat surface is clearly shown in Fig. 12. The Applicant has denoted this substantially spherical surface opposite the flat surface as numeral 108. The Applicant submits, concurrent with the filing of this Amendment, a Request For Approval of Drawing Changes, illustrating the location of surface 108.

With respect to the objection to the "viewing means," the Applicant has canceled claim 10, without prejudice, in an effort to expedite prosecution and without admission that any amendment is necessary.

With respect to the objection to the "coupling means for optically coupling the optical block to the image intensifying means," the Applicant has canceled claim 12, without prejudice, in an effort to expedite prosecution and without admission that any amendment is necessary.

With respect to the objection to the image detection means consisting of "videotape detector chip, motion picture film, and combinations thereof," the Applicant has canceled claim 20, without prejudice, in an effort to expedite prosecution and

without admission that any amendment is necessary.

With respect to the Examiner's assertion that the drawings fail to show how the image intensifying means, viewing means, cleaning means, recording means, color filter means, and coupling means are interconnected and controlled so as to obtain the specific operations desired by the applicant, the Applicant submits that the drawings, in combination with the specification, clearly set forth the relationship, if any, and intended operation of the claimed features of the image viewing device of the present invention. Because the Applicant has canceled, without prejudice, those claims relating to the viewing means and coupling means, the Applicant will limit the following discussion to the image intensifying means, cleaning means, recording means, and color filter means.

The image intensifying means is fully disclosed, especially at page 12, line 8 - page 14, line 12 of the specification, as well as Figs. 7-9. The Examiner's attention is directed to the following section from the specification (page 13, lines 6-14):

An additional advantage of using the image intensifier **58** is that it can be **optically coupled** to the optical block **36** with glue, grease, or **just contact pressure**. In this way, **the fisheye image** never really leaves the optical block **36**, but **is transmitted to the image intensifier 58 without loss**. With reference to Figure 8, a non-limiting example of an image viewing device **50**, similar to the one shown in Fig. 4, along with an optional image intensifier **58** is shown. With reference to Figure 9, a non-limiting example of an image viewing device **50**, similar to the one shown in Fig. 5, along with an image intensifier **58** is shown. (emphasis added)

Thus, the image intensifying means can be optically coupled to the optical block by simple pressure, i.e., the image intensifying means can simply abut the

optical block. This abutting configuration is clearly shown in Fig. 8. The image intensifying means can operate independent of the cleaning means, recording means, and color filter means, i.e., they are not required for the operation of the image intensifying means.

The cleaning means is fully disclosed, especially at page 10, line 14 - page 11, line 2, as well as Fig. 6. The Examiner's attention is directed to the following section from the specification (page 10, line 14 - page 11, line 2):

With reference to Figure 6, an image viewing device **50** is similar to the one shown in Figure 5; however, the difference lies in the use of an optional cleaning means **54**. Because debris (e.g., snow, ice, etc.) and dust may form about the aperture **44** and on the surface of the optical block **46** closest to the aperture **44**, the ***cleaning means 54 can deliver, by way of a non-limiting example, a measured amount of compressed gas or air through a conduit 56 outwardly toward the area surrounding the aperture 44 in order to loosen and remove any debris therefrom.*** Although only one conduit **56** is shown, it should be noted that a plurality of these structures may be employed to more efficaciously loosen and remove debris. Therefore, the image viewing device of the present invention can be programmed to be self-cleaning by the periodic application of pressurized gas or air about the aperture **44**. (emphasis added).

Thus, the cleaning means simply delivers pressurized gas through a conduit towards the aperture. This structural arrangement is clearly shown in Fig. 6. The cleaning means can operate independent of the image intensifying means, recording means, and color filter means, i.e., they are not required for the operation of the cleaning means.

The recording means is fully disclosed, especially at page 10, lines 1-14, as well as Figs. 5 and 9. The Examiner's attention is directed to the following section

from the specification (page 10, line 1 -14):

In order to capture and record the fisheye image, an optional image detection means is preferably associated with image viewing device of the present invention. With reference to Figure 5, an image viewing device **50** is similar to the one illustrated in Fig. 4; however, the difference lies in the use of an optional image detection means **52**. ***The image detection means 52 of the present invention can be either photographic film (e.g., motion picture camera, still photographic camera), or a semiconductor element (e.g., videotape camera), or any other type of camera whose purpose is to capture and record images. For example, the rear portion of the image viewing device 50 could be adapted to receive a conventional camera (e.g., clamps, clips, threaded screw, etc.).*** Additionally, an optional viewfinder (not shown) can be provided to allow an operator to view the fisheye image generated before actuating the image detection means **52**. (emphasis added).

Thus, the recording means (i.e., image detection means) can be a simple, conventional camera, either conventionally mounted to the image viewing device or simply abutting the rear of the image viewing device. This structural arrangement is clearly shown in Fig. 5. The recording means can operate independent of the image intensifying means, cleaning means, and color filter means, i.e., they are not required for the operation of the recording means.

The color filter means is fully disclosed, especially at page 15, line 5 - page 16, line 13, as well as Fig 11. The Examiner's attention is directed to the following section from the specification (page 15, line 14 - page 16, line 2):

The present invention has corrected this color content loss problem by placing an electrically tuned color filter behind the aperture and being optically coupled to the optical block, of course. With reference to Figure 11, an image viewing device **50**, is similar to the one shown in Fig. 9; however, the difference lies in the use of an electrically tuned

color filter 62 (Displaytech, Boulder, Colorado). ***Preferably, the color filter 62 is disposed in a recess 46A on the surface of the optical block 46 so as to be coplanar with the surface of the optical block 46.*** Preferably, a control system 64 is in electrical communication with the color filter 62 so as to be able to control the operation of the color filter 62. Additionally, optional components such as, but not limited to, video cameras (not shown) and black and white video viewers (not shown) may be employed. (emphasis added).

Thus, the color filter means is disposed within the optical block and is employed to produce a color image, if, for example, there is a color content loss. This structural arrangement is clearly shown in Fig. 11. The color filter means can operate independent of the image intensifying means, cleaning means, and recording means, i.e., they are not required for the operation of the color filter means.

Accordingly, the Applicant submits that the objection to the drawings has been overcome.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 1-24 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner asserted that there are no details in the specification of how the parts should be interconnected and controlled so as to obtain the specific operations desired by the applicant. The Examiner asserted that block diagrams with functional labels are insufficient because the subject matter is directed to a pinhole aperture of 100 microns. The Examiner asserted that structural details as to how such small

element is interconnected with other elements are essential for a proper understanding of the disclosed invention.

The Examiner asserted that the specification further fails to provide how it is possible to obtain "an image comprising at least 180 degree field of view" since the optical block is placed behind the aperture. The Examiner asserted that the field of view illustrated in the Figures are clearly less than 180 degrees.

The Applicant respectfully traverses the 35 U.S.C. 112, first paragraph rejection of claims 1-24.

As an initial matter, the Applicant takes exception to the Examiner's continuing characterization of the present invention as being "directed to a pinhole aperture of 100 microns." The 100 micron aperture is a non-limiting example of an aperture size that may be used to practice the present invention.

Additionally, the Applicant has previously detailed in this Amendment how the features of the present invention function, where they are located with respect to one another, and how they relate or cooperate with one another, if applicable. The specification provides sufficient information to one of ordinary skill in the art regarding how to practice the best mode of the present invention.

That being said, the present invention is directed to an image viewing device that is capable of producing images comprising at least a 180 degree field of view (i.e., a "fisheye" view). The present invention consists primarily of an enclosure (preferably light-tight) containing an aperture on one surface and a refractory material contained within the enclosure. When light rays from an image enter through the aperture, they are compressed by the refractory material to produce the fisheye view

of the image. The present invention is thus very simple in its design and operation; hence, the Applicant is uncertain as to the basis for the Examiner's assertion that the Applicant has not provided sufficient detail. For example, the embodiment of Fig. 10, fully disclosed in the specification, produces an image that comprises greater than 180 degree field of view by placing a lens on the aperture surface opposite that of the optical block. **Thus, the image produced has to be comprised of at least a 180 degree field of view.** This is a simple optical principle, known to one of ordinary skill in the art. With respect to the Examiner's assertion that the field of view illustrated in the Figures are clearly less than 180 degrees, the Applicant submitted rough, hand-drawn informal drawings of the figures that were not perfectly representative of the actual fields of view claimed by the present invention. If the Examiner requires so, the Applicant will submit one or more additional figures, illustrating an accurate representation of the at least 180 degree field of view of Fig. 10.

Accordingly, the Applicant submits that the 35 U.S.C. 112, first paragraph rejection of claims 1-24 has been overcome.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 10 and 11 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner asserted that, in claim 10, the alternative expression "the optical block or the image intensifying means" renders the claims indefinite because the limitation covers two different elements that are not equivalents.

The Examiner asserted that, in claim 11, the alternative expression "the optical block or the image intensifying means" renders the claims indefinite because the limitation covers two different elements that are not equivalents.

The Applicant respectfully traverses the 35 U.S.C. 112, second paragraph rejection of claims 10 and 11.

In order to expedite prosecution, and without admission that any amendment is necessary, the Applicant has canceled claim 10 and amended claim 11 to remove the allegedly indefinite language.

Accordingly, the Applicant submits that the 35 U.S.C. 112, second paragraph rejection of claims 10 and 11 has been overcome.

PRIOR ART

The prior art made of record and not relied upon has been examined by the Applicant and found not to anticipate or render obvious the present invention.

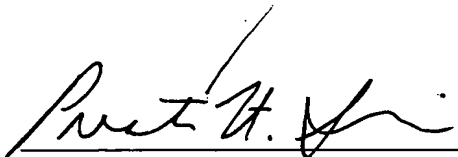
The Applicant respectfully requests reconsideration of the claims of the instant application and a favorable response is earnestly solicited. In the interests of expediting the prosecution of the instant application, it is respectfully requested that the Examiner contact the attorney of record by telephone in order to resolve any

issues concerning patentability.

Respectfully submitted,

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